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Willem Marie Coene

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BRIARCLIFF MANOR, NY 10510

EXAMINER

LAMB, CHRISTOPHER RAY

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/537,880	Applicant(s) COENE ET AL.	
	Examiner CHRISTOPHER R. LAMB	Art Unit 2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 May 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 10-19 is/are rejected.
- 7) ☒ Claim(s) 9 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: there is no antecedent basis for the “computer readable medium.”

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5:

It claims wherein “said photo detector is partitioned into one selected from the group consisting of (i) an even number of equally sized detector partitions, (ii) four equally sized detector partitions corresponding to a square lattice, and (iii) six equally sized detector partitions corresponding to a hexagonal lattice.”

The first part of this claim language – “one selected from the group” -- appears to indicate that the photo detector must meet the subject matter contained in one of groups (i), (ii), or (iii).

However, any photo detector that meets choice (ii) or (iii) also meets choice (i): a photodetector divided into four or six equally sized detector partitions is one with an

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even number of equally sized detector partitions. Conversely, any photo detector that meets choice (i) might still meet (ii) or (iii).

Thus the claim language is confusing. It asks to select one of the groups but the various group parameters are overlapping. As a result, it's not clear what exactly is being claimed.

Regarding claims 6 and 7:

They are dependent on claim 5 and therefore include the same language.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-4, 8, and 10-16 is rejected under 35 U.S.C. 102(b) as being anticipated by Maeda et al. (US 5,491,678).

Regarding claim 1:

Maeda discloses:

Bit detector for detecting the bit values of bits of a channel data stream stored on a record carrier (Fig. 17b),

wherein the channel data stream comprises a channel strip of at least two bit rows one-dimensionally evolving along a first direction and aligned with each other along a second direction, said two directions constituting a two-dimensional lattice of bit positions (column 4, lines 50-60),

said bit detector comprising:

a photo detector for detecting light reflected from or transmitted through said record carrier in response to one or more incident light beams, each light beam being directed onto a position along said second direction (column 5, lines 1-15),

said photo detector being partitioned into at least two detector partitions for detecting part of the reflected or transmitted light and for generating partial high frequency (HF) signal values (column 16, lines 50-65: each detector is divided into four partitions, each generating a signal), and

a signal processing means for determining the bit values of the bits of said channel data stream from said partial high frequency (HF) signal values (column 17, lines 5-15).

Regarding claim 2:

Maeda discloses:

wherein said photo detector is adapted to image the plane of an exit pupil of a lens onto said photo detector (Maeda does not use this terminology, but it follows from Fig. 17a: the plane of the exit pupil of the focusing lens is imaged through the system to the light detectors),

said lens having an exit pupil being provided in an optical read-out unit for directing the light reflected from or transmitted through said record carrier onto said photo detector (again, this is apparent from Fig. 17a).

Regarding claim 3:

Maeda discloses:

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wherein the bits of said channel data stream are arranged on a two-dimensional hexagonal or square lattice (e.g., Fig. 2, Fig. 3, or Fig. 18).

Regarding claim 4:

Maeda discloses:

wherein the detector partitions are oriented along the directions of the reciprocal space lattice corresponding to the real space lattice of bits (this follows from column 16, line 60 to column 17, line 5: if detectors 407 and 408 and 407' and 408' are used to detect the tracking error, they must be aligned along the track).

Regarding claim 8:

Maeda discloses:

wherein said photo detector is adapted to image the plane of an information layer on said record carrier onto said photo detector (this follows from Fig. 17a, column 5, lines 1-10).

Regarding claim 10:

Maeda discloses:

wherein said signal processing means are adapted for determining the bit value of a bit of said channel data stream from partial HF signal values generated by said photo detector from light detected in response to a light beam directed on the bit whose bit value shall be detected and at least one light beam directed on a neighboring bit of said bit (column 14, lines 15-30; column 15, line 60 to column 16, line 15: there are two lasers with two spots and the two signals are used together for data detection).

Regarding claim 11:

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Maeda discloses:

wherein the bits of said channel data stream are grouped into hexagonal lattice clusters having one central bit and six nearest neighbor bits or square lattice clusters having one central bit and four or eight nearest neighbor bits (shown in Fig. 18) and

wherein said signal processing means are adapted for determining the bit value of a bit of said channel data stream from said partial high frequency (HF) signal values and the sum of said partial high frequency (HF) signal values generated in response to the same incident light beam (column 17, lines 1-15).

Regarding claim 12:

Maeda discloses:

a number of said photo detectors each having at least two detector partitions for each bit row (visible in Fig. 17b).

Regarding claim 13:

Maeda discloses:

wherein the partial HF signal values, that are generated from the detector partitions for each row, are transformed into another set of modified partial HF signal values that are further used in the signal processing for bit detection (the circuitry to perform said transformation is shown in Fig. 17b).

Regarding claim 14:

Maeda discloses:

wherein said modified partial HF signal values are generated by means of symmetry operations (column 18, lines 5-30; feeding the output of paired photodetectors into differential amplifiers is a symmetry operation).

Regarding claim 15:

This is a claim to the method performed by the bit detector of claim 1 and is met when the detector operates. No further elaboration is necessary.

Regarding claim 16:

Every element positively recited has already been identified with respect to earlier rejections. No further elaboration is necessary.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda in view of Satoh et al. (US 5,572,508).

Regarding claim 5:

As noted in the 35 USC 112, second paragraph, rejection above, the claim language in this claim is unclear. However, as best as it can be understood, applicant appears to be claiming wherein there are an even number of equally sized detector partitions, including but not limited to four partitions in a square lattice or six in a hexagonal lattice.

Maeda discloses a bit detector as discussed in the rejection of claim 3.

Maeda discloses:

wherein said photo detector is partitioned into an even number of detector partitions (as can be seen in Fig. 16b, each photodetector has four partitions).

Maeda does not disclose:

wherein said even number of detector partitions are equally sized.

Satoh discloses a photo detector partitioned into an even number of equally sized detector partitions (Fig. 5).

It would have been obvious to one of ordinary skill to include in Maeda wherein said even number of detector partitions are evenly sized.

The rationale is as follows:

Satoh is directed to the same field of art. Satoh discloses a known photodetector arrangement that can detect 2d patterns. One of ordinary skill could have combined the teaching of Satoh with that of Maeda and achieved predictable results.

Regarding claim 6:

Maeda in view of Satoh discloses:

wherein said detector partitions are coupled into pairs of two detector partitions located on opposite sides of said photo detector, each pair of detector partitions being adapted to generate one partial HF signal value from the light detector by the detector partitions of the pair (see Satoh Fig. 5).

Regarding claim 7:

Maeda in view of Satoh discloses:

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wherein said signal processing means are adapted for generating a set of push-pull signals by subtracting partial HF signal values generated by detector partitions located on opposite sides of said photo detector (Maeda column 16, line 55 to column 17, line 5).

8. Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda in view of applicant's admitted prior art.

Regarding claim 17:

Maeda discloses a reproduction device comprising a bit detector as discussed in the rejection of claim 1.

Maeda discloses:

a modulation code decoder (e.g., Fig. 8, or alternatively Fig. 11 and 12, or alternatively Fig. 13).

Maeda does not disclose:

an error correction code decoder.

In a previous Office Action, the Examiner took Official Notice that incorporating an error correction code into a user data stream, and including an error correction code decoder in a reproduction device, is well known in the art. Since applicant did not traverse the taking of Official Notice this fact is now taken as admitted prior art.

It would have been obvious to one of ordinary skill in the art to include an error correction code decoder in the reproduction device disclosed by Maeda.

The rationale is as follows:

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Incorporating error correction in a data stream can both detect and fix errors, improving performance. Since error correction is commonly used in optical recording and reproduction, one of ordinary skill could easily have added an error correction code decoder to the apparatus disclosed by Maeda and achieved predictable results.

Regarding claim 18:

This is a claim to a method corresponding to the apparatus of claim 17 and is met when the apparatus operates.

Regarding claim 19:

Maeda discloses all the steps to the method of claim 15 as discussed above.

Maeda does not disclose:

computer program code means for causing a computer program to perform said steps when said computer program is executed on a computer.

In a previous Office Action, the Examiner took Official Notice that it is well known in the art to control optical recording and reproduction devices using a computer (think, e.g., of a dvd drive in a home computer). Since applicant did not traverse the taking of Official Notice this fact is now taken as admitted prior art.

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to include in Maeda wherein said steps are performed by a computer due to computer program code.

The rationale is as follows:

Maeda already discloses all the details of the method. One of ordinary skill could easily have programmed a computer to carry them out and achieved predictable results.

Allowable Subject Matter

9. Claims 9 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 9:

The closest prior art of record, Maeda, does not disclose wherein said photo detector is partitioned in a hexagonal lattice that includes a number of hexagonally shaped detector partitions.

This limitation in combination with the other limitations of the claim renders it allowable over the prior art of record.

Regarding claim 20:

It is allowable due to its dependence on claim 9.

Response to Arguments

11. Applicant's arguments filed May 28th, 2009 have been fully considered. For the most part they are not persuasive.

Regarding the claim objection:

Applicant's amendment did overcome these objections.

Regarding the 35 USC 112 rejections:

Applicant's amendment overcame the specific problem that caused the previous 35 USC 112 rejection of claims 5-7 and 9. However, in the case of claims 5-7

applicant's amendment created a new problem and thus those claims remain rejected under 35 USC 112, second paragraph.

Regarding the 35 USC 101 rejection:

Applicant's amendment has overcome this rejection. However, note that the specification has now been objected to for failing to provide antecedent basis for the claim language.

Regarding the 35 USC 102 rejections:

Applicant argues with the rejection of claims 1-4, 8, and 10-16 as anticipated by Maeda. Applicant argues that Maeda does not disclose generating partial high frequency signal values.

Implicit in applicant's argument is the contention that an HF signal values must be "HF signal vectors as disclosed in the specification...wherein 'at the neighboring bits, HF signal vectors comprising a number of partial HF signals, each in their turn match the possible fingerprints with different likelihoods.'" In other words, applicant is arguing that Maeda does not generate HF signal values like the ones applicant discloses in their specification.

That may be. However, those specifics are not claimed.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., HF signal vectors) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Maeda's disclosure does meet a reasonable interpretation of the claim language. The claim language only requires that the photodetector partitions generate partial high frequency signal values. Since the data signal in Maeda is made up from the sum of the contribution of multiple detector partitions, the partitions can reasonable be said to generate partial values. As far as high frequency goes, this is a very vague term, and any reproduction from an optical disc occurs fast enough to be reasonably called "high frequency."

Regarding the 35 USC 103 rejections:

Here applicant only argues that these claims are allowable for the same reason as the independents. Since those claims were not found to be allowable this argument is not persuasive.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER R. LAMB whose telephone number is (571)272-5264. The examiner can normally be reached on 9:00 AM to 5:30 PM Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Feild can be reached on (571) 272-4090. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Joseph H. Feild/
Supervisory Patent Examiner, Art
Unit 2627

/C. R. L./
Examiner, Art Unit 2627